REMARKS

This is a response under 37 CFR §1.116. The specific arguments herein, to the extent they were not presented earlier, are now presented because they are necessitated by the arguments made by the Examiner in the last office action. Since this response is being filed within two months of the mailing date of the final rejection, applicant respectfully requests an Advisory Action or a Notice of Allowance. Claims 1-7 and 13-24 are in this application. Claims 8-12 have been cancelled.

The Examiner rejected claims 13-16 under the first and second paragraphs of 35 U.S.C. §112. Claim 13 recites, in part,

> "receiving a message addressed to one of a plurality of customer devices, the plurality of customer devices to be connected to a plurality of modems, the plurality of modems to be connected to a plurality of first line cards, the plurality of first line cards to be connected to a second line card that received the message, the message having an IP address and a subnet mask, the plurality of customer devices having a plurality of IP addresses."

The plurality of modems required by claim 13 can be read to be, for example, the customer xDSL modems 220 shown in applicant's FIG. 2, while the plurality of first line cards required by claim 13 can be read to be, for example, the xDSL line cards 216 shown in applicant's FIG. 2. In addition, the second line card required by claim 13 can be read to be, for example, network line card 212 shown in applicant's FIG. 2.

Further, applicant's specification teaches that the:

> "xDSL modem 220 at a customer's premise, in turn, is connected to a number of customer internet devices, such as personal computers, and a telephone. Each customer internet device has a port that is physically connected to an xDSL modem 220, an IP interface that is associated with the

port, and an IP address that is associated with the IP interface." (See page 5, lines 8-13 of applicant's specification.)

Thus, applicant's specification teaches that a number of customer devices, which can be read to be a plurality of customer devices, are connected to the customer xDSL modems 220, which can be read to be the plurality of modems. In addition, applicant's specification teaches that each customer device has an IP address. As a result, applicant's specification also teaches that the plurality of customer devices have a plurality of IP addresses.

Further, one skilled in the art would understand that a packet includes a destination address. One would also understand that a downstream packet, which has a destination address of a customer device that is connected to a customer xDSL modem 220, is received by network line card 212. As a result, one skilled in the art would understand that network line card 212 receives messages that are addressed to the customer devices that are connected to the customer xDSL modems 220.

Further, applicant's specification teaches that:

"the IP address has an associated subnet mask that identifies the IP addresses of all of the customer internet devices (hosts) that are connected to device 200." (See page 4, lines 2-4 of applicant's specification.)

Thus, applicant's specification teaches that the message has an IP address and a subnet mask.

In addition to the above, claim 13 also recites:

"identifying a complete IP address from the IP address and the subnet mask of the message; and

"determining if the complete IP address is identical to an IP address of the plurality of IP address of the plurality of customer devices."

Applicant's specification teaches:

> "Network line card 212 receives all of the messages that match the IP address and subnet mask of network line card 212, evaluates the IP addresses associated with the messages, and determines the line cards and ports that correspond with the IP addresses via the table. Following this, network line card 212 forwards the messages on to the xDSL line cards 216 on bus 210." (See page 6, lines 16-21 of applicant's specification.)

Thus, applicant's specification teaches that network line card 212 evaluates the IP address that is associated with a message, and determines the line card that corresponds with the IP address. One skilled in the art would understand that to evaluate the IP address and determine the line card that corresponds with the IP address, one must identify the complete IP address and determine if the complete IP address is identical to an IP address of a customer device stored in the table.

Thus, from what can be determined, applicant's specification supports and distinctly claims the limitations required by claim 13 and, as a result, claim 13 satisfies the requirements of the first and second paragraphs of section 112. In addition, dependent claims 14-15 satisfy the requirements of the first and second paragraphs of section 112 for the same reasons as claim 13.

With respect to claim 16, this claim recites:

> "each first line card of the plurality of first line cards maintains a table that includes each port of each first line card, and an associated IP address of a customer device for each port of each first line card that has an associated IP address."

Applicant's specification teaches:

> "Each line card 212 and 216 maintains a table that indicates each of the IP addresses that are associated with each port of each line card 212 and 216." (See page 5, lines 18-20 of applicant's specification.)

Thus, applicant's specification teaches that each xDSL line card 216, which can be read to be a first line card, maintains a table that includes each port of each first line card, and an associated IP address of a customer device for each port of each first line card.

Therefore, from what can be determined, applicant's specification supports and distinctly claims the limitations required by claim 16 and, as a result, claim 16 satisfies the requirements of the first and second paragraphs of section 112.

The Examiner rejected claims 1-7, 17-22, and 24 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art in view of Bhatia et al. (U.S. Patent No. 6,829,239). For the reasons set forth below, applicant respectfully traverses this rejection.

Claim 1 recites:

> "a bus;
> "a plurality of first line cards connected to the bus, each first line card having a plurality of local ports, the plurality of local ports being associated with a plurality of customer devices that have a plurality of IP addresses; and
> "a second line card connected to the bus, the second line card having a network port that is connectable to a network segment, the network port having an IP address and a subnet mask, the subnet mask of the network port identifying a range of IP addresses from the IP address of the network port, the range of IP addresses including all of the plurality of IP addresses of the plurality of customer devices."

Claim 17 recites similar limitations.

In rejecting the claims, the Examiner pointed to bus 110 shown in applicant's prior art FIG. 1 as constituting the bus required by the claims, and the xDSL line cards 116 shown in applicant's prior art FIG. 1 as constituting the plurality of first line cards required by the claims. In addition, each xDSL line card 116 has a number of local ports (connected to a number of local lines 118), which the Examiner read to be the plurality of local ports required by the claims. With respect to the plurality of customer devices, the Examiner argued that a number of customer devices are associated with the local lines 118.

In further rejecting the claims, the Examiner pointed to network line card 112 shown in applicant's prior art FIG. 1 as constituting the second line card required by the claims. In addition, line card 112 has a network port connected to network segment 114, which the Examiner read to be the network port and the network segment required by claim 1.

The Examiner noted that applicant's prior art FIG. 1 does not teach that the network port of network line card 112 identifies a range of IP addresses from the IP address of the network port, where the range of IP addresses includes all of the plurality of IP addresses of the plurality of customer devices. However, the Examiner pointed to the Bhatia patent as teaching these limitations.

Specifically, the Examiner, citing from column 4, line 46 to column 6, line 17, argued that Bhatia teaches that the LAN modem maintains a list of the IP addresses associated with the workstations or customer devices that are directly connected to it and, upon receipt of a packet from the network side, determines which workstation or customer device should receive the packet. The Examiner then argued that it would be obvious to incorporate the LAN modem teachings of Bhatia into applicant's prior art

FIG. 1, and that one skilled in the art would be motivated to do so in order to improve performance.

Applicant, however, respectfully does not understand the argument set forth by the Examiner. FIG. 1 of the Bhatia patent illustrates a LAN modem 300 that is directly connected to a number of customer devices (workstations and telephones). With respect to applicant's prior art FIG. 1, one skilled in the art would understand that the ends of the local lines 118 are located at a number of customer premises, and a number of customer xDSL modems are connected to the ends of the local lines 118 at the customer premises. One skilled in the art would further understand that customer devices, such as PCs and telephones, are connected to the customer xDSL modems at the customer premises.

Thus, since LAN modem 300 and the customer xDSL modems (connected to the customer ends of local lines 118) are both directly connected to customer devices (computers and telephones), the teachings of LAN modem 300 would appear to be relevant to a customer xDSL modem.

As a result, if the teachings of Bhatia were incorporated into applicant's admitted prior art, one skilled in the art would understand the Bhatia patent to teach that a customer xDSL modem (connected to the customer end of a local line 118) can maintain a list of the IP addresses associated with the PCs and telephones that are directly connected to it and, upon receipt of a packet from a local line 118, determine which PC or telephone should receive the packet.

However, even if this teaching of Bhatia were incorporated into applicant's admitted prior art, this teaching is unrelated to the network port of line card 112. As a result, even if the teachings of Bhatia were incorporated into applicant's prior art FIG. 1, the combination would still fail to teach or suggest that the network port of line card 112 identifies a range of IP addresses from the IP address of the network port,

where the range of IP addresses includes all of the plurality of IP addresses of the plurality of customer devices.

Further, it is unclear how the teachings of Bhatia can be applied to the network port of line card 112 shown in applicant's prior art FIG. 1. As described by the Examiner, LAN modem 300 maintains a list of the IP addresses that are associated with the workstations or customer devices that are directly connected to the local ports of LAN modem 300 and, upon receipt of a packet from the network side, determines which workstation or customer device should receive the packet.

If these teachings were applied to network line card 112 shown in applicant's prior art FIG. 1, then one skilled in the art would understand Bhatia to teach that the network port of line card 112 can maintain a list of the IP addresses of the xDSL line cards 116 that are directly connected to the local ports of network line card 112 and, upon receipt of a packet from the network side, determine which xDSL line card 116 should receive the packet.

Thus, even if the teachings of Bhatia were incorporated into applicant's prior art FIG. 1, the combination would still fail to teach or suggest that the network port of line card 112 identifies a range of IP addresses from the IP address of the network port, where the range of IP addresses includes all of the plurality of IP addresses of the plurality of customer devices.

Therefore, since the combination of applicant's prior art FIG. 1 and Bhatia fail to teach or suggest that the network port of line card 112 identifies a range of IP addresses from the IP address of the network port, where the range of IP addresses includes all of the plurality of IP addresses of the plurality of customer devices, claims 1 and 17 are patentable over applicant's admitted prior art in view of Bhatia.

In addition, since claims 2-7 depend either directly or indirectly from claim 1, claims 2-7 are patentable over applicant's admitted prior art in view of Bhatia for the

same reasons that claim 1 is patentable over applicant's admitted prior art in view of Bhatia. Further, since claims 18-22 and 24 depend either directly or indirectly from claim 17, claims 18-22 and 24 are patentable over applicant's admitted prior art in view of Bhatia for the same reasons that claim 17 is patentable over applicant's admitted prior art in view of Bhatia.

The Examiner rejected claim 23 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art in view of Bhatia et al. and further in view of Aiken, Jr. et al. (U.S. Patent No. 6,430,622). Claim 23 depends indirectly from claim 17 and, as a result, is patentable over applicant's admitted prior art in view of Bhatia et al. and further in view of Aiken, Jr. et al. for the same reasons that claim 17 is patentable over applicant's admitted prior art in view of Bhatia.

The Examiner rejected claims 13-15 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art in view of Ma et al. (U.S. Patent No. 6,798,743) and further in view of Engwer et al. (U.S. Patent No. 7,082,114). For the reasons set forth below, applicant respectfully traverses this rejection.

Claim 13 recites:

> "receiving a message addressed to one of a plurality of customer devices, the plurality of customer devices to be connected to a plurality of modems, the plurality of modems to be connected to a plurality of first line cards, the plurality of first line cards to be connected to a second line card that received the message, the message having an IP address and a subnet mask, the plurality of customer devices having a plurality of IP addresses;
>
> "identifying a complete IP address from the IP address and the subnet mask of the message; and
>
> "determining if the complete IP address is identical to an IP address of the plurality of IP address of the plurality of customer devices."

In rejecting the claims, the Examiner pointed to central office device 100 shown in applicant's prior art FIG. 1, and argued that device 100 receives a message that is addressed to one of a plurality of customer devices. In addition, the Examiner appeared to point to the xDSL line cards 116 shown in applicant's prior art FIG. 1 as constituting the plurality of first line cards required by the claims. In addition, each xDSL line card 116 has a number of local ports (connected to a number of local lines 118) which are connected to a number of customer xDSL modems, which the Examiner appeared to read to be the plurality of modems required by the claims. With respect to the plurality of customer devices, the Examiner argued that a number of customer devices are connected to the customer xDSL modems.

With respect to the second line card required by the claims, applicant respectfully does not understand the argument set forth by the Examiner, or the Examiner's reliance on the Ma patent. The Examiner appears to suggest that it would be obvious in view of Ma to replace network line card 112 shown in applicant's prior art FIG. 1 with a plurality of network line cards. Applicant, however, is unclear as to the relevance of a single network line card 112 versus a plurality of network line cards 112, and assumes that the Examiner would read network line card 112 shown in applicant's prior art FIG. 1 to be one of the plurality of network line cards 112.

In further rejecting the claims, the Examiner noted that the prior art combination does not teach a second line card that identifies a range of IP addresses from the IP address of the network port, where the range of IP addresses includes all of the plurality of IP addresses of the plurality of customer devices. However, the Examiner pointed to the Engwer patent as teaching these limitations.

Specifically, the Examiner, citing column 10, lines 18-39, argued that Engwer teaches receiving a message that has an IP address and a subnet mask, identifying a

complete IP address from the IP address and the subnet mask, and determining if the complete IP address is identical to an IP address of a customer device.

Applicant, however, respectfully does not understand the argument set forth by the Examiner. The text cited by the Examiner refers to a wireless unit (WU) 700 that receives messages from different access points (AP), where the messages include the network protocol addresses and the subnet masks of the APs. As taught by Engwer, the logic circuit 704 of a WU 700 receives a message from a candidate AP, extracts the network protocol address and subnet mask of the candidate AP, and stores it in memory 706. (See column 10, lines 21-24 of Engwer.)

Thus, Engwer teaches that it is the network protocol address and subnet mask of a candidate AP that is received. However, applicant has been unable to find any discussion in Engwer that teaches or suggests that a WU 700 identifies a complete IP address from the network protocol address and subnet mask of a candidate AP, and determines if the complete IP address is identical to an IP address of a customer device, such as a wireless laptop.

Therefore, although Engwer teaches that a WU 700 receives a message that includes a network protocol address and a subnet mask of an access point, there is nothing in Engwer that teaches or suggests that the WU 700 identifies a complete IP address from the network protocol address and the subnet mask, and determines if the complete IP address is identical to an IP address of a customer device.

In addition, the WUs 700 are customer devices such as computers, faxes, and telephones. (See column 10, lines 1-7 of Engwer.) Thus, since a WU 700 is a customer device, the teachings of Engwer appear to be relevant to the plurality of customer devices that are required by the claims. As a result, if the teachings of Engwer were incorporated into applicant's admitted prior art, one skilled in the art would understand the Engwer patent to teach that a customer device can be modified

to be a wireless customer device if a customer xDSL modem (connected to the customer end of a local line 118) was modified to be a wireless AP.

As suggested by the Examiner, if a number of customer xDSL modems were modified to be wireless APs, and if the wireless APs were in different subnets, one skilled in the art would be motivated to incorporate the teachings of Engwer into applicant's prior art FIG. 1 in order to build a system with wireless customer devices that can change from one subnet to another.

However, even if the wireless teachings of Engwer were incorporated into applicant's admitted prior art, these teachings are unrelated to a second line card, such as network line card 112 shown in applicant's prior art FIG. 1. As a result, even if the wireless teachings of Engwer were incorporated into applicant's prior art FIG. 1, the combination would still fail to teach or suggest that a network line card, such as network line card 112, identifies a range of IP addresses from the IP address of the network port, where the range of IP addresses includes all of the plurality of IP addresses of the plurality of customer devices.

Further, it is unclear how the wireless teachings of Engwer could be applied to a second line card, like the network line card 112 shown in applicant's prior art FIG. 1. As noted above, the Engwer patent teaches a local area network that includes a number of access points for wireless customer devices. Thus, it is unclear how the teachings of a wireless customer device, such as a roaming laptop, can be applied to network line card 112.

Therefore, since Engwer fails to teach or suggest that a WU 700 identifies a complete IP address from a network protocol address and a subnet mask of an access point, and determines if the complete IP address matches the IP address of a customer device, and since the combination of applicant's prior art FIG. 1, Ma, and Engwer fail to teach or suggest that a second line card, such as network line card 112,

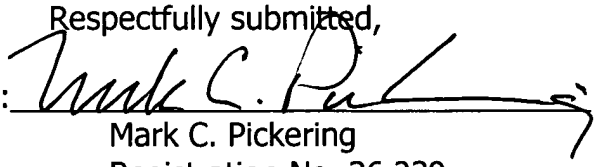
identifies a range of IP addresses from the IP address of the network port, where the range of IP addresses includes all of the plurality of IP addresses of the plurality of customer devices, claim 13 is patentable over applicant's admitted prior art in view of Ma and further in view of Engwer.

In addition, since claims 14-15 depend either directly or indirectly from claim 13, claims 14-15 are patentable over applicant's admitted prior art in view of Ma and further in view of Engwer for the same reasons that claim 13 is patentable over applicant's admitted prior art in view of Ma and further in view of Engwer.

The Examiner additionally rejected claim 16 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art in view of Ma et al. and Engwer et al. and further in view of Bhatia. Claim 16 depends indirectly from claim 13 and, as a result, is patentable over applicant's admitted prior art in view of Ma et al. and Engwer et al. and further in view of Bhatia for the same reasons that claim 13 is patentable over applicant's admitted prior art in view of Ma et al. and further in view of Engwer et al.

Thus, for the foregoing reasons, it is submitted that all of the claims are in a condition for allowance. Therefore, the Examiner's early re-examination and reconsideration are respectively requested.

Respectfully submitted,

Dated: 12-10-07 By: 

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